Year 1 Evaluation Report for the Manufacturing Experiential Advancement Readiness Network (EARN) Project

Funded by the National Science Foundation Advanced Technological Education Program

Prepared by The New Growth Group, LLC, August 2019

Introduction and Overview

Columbus State Community College (CSCC), in collaboration with Lorain County Community College (LCCC), received $549,730 from the National Science Foundation (NSF) Advanced Technological Education (ATE) program to support an initiative called the Manufacturing Experiential Advancement Readiness Network (EARN) Project. The initiative, which launched in September 2018 and continues through August 2021, assembles industry, state, and education partners to support the expansion and adoption of experiential work-based learning programming throughout Ohio to increase the supply of advanced manufacturing technicians. This report provides a summary of evaluation activities and findings following the first year of the initiative. The report is organized into sections providing an Introduction and Overview, Evaluation Background and Methods, Evaluation Results: Review of First Year Activities, and Recommendations. The intended audience includes EARN program managers, NSF ATE program officers, and other interested stakeholders.

Three objectives are stated in the award:

- Objective 1. Support educators by developing a statewide earn and learn model education pathway from high schools to community colleges to 4-year partners and employable exit points into in-demand manufacturing careers.
- Objective 2. Attract students by developing and implementing an outreach effort to provide high school students with the opportunity to explore the variety of careers associated with advanced manufacturing leading to earning degrees and industry recognized certifications.
- Objective 3. Engage industry by disseminating and expanding experiential learning opportunities in the state by benchmarking best practices and collaboration with industry.

CSCC and LCCC are leveraging two currently successful models as examples to promote earn and learn programs: CSCC's Modern Manufacturing Work Study (MMWS) and LCCC's TRAIN OH programs. Additionally, several prominent statewide initiatives are leveraged to support outreach, communication, and stakeholder engagement. LCCC leads the Ohio TechNet (OTN), a consortium of all Ohio community colleges, 500+ employers, and workforce partners from throughout the state that engages the postsecondary manufacturing training to promote and resource innovative models serving the manufacturing industry. LCCC was the recent recipient (June 2019) of a $12,000,000 grant from the US Department of Labor (USDOL), in collaboration with Ohio TechNet (OTN) and The Ohio Manufacturers' Association (OMA), to upskill 5,000 Ohioans over the next four years through Industry Recognized Apprenticeship Programs (IRAP), an earn-and-learn guided by the USDOL.

The grant has four Deliverables and associated Activities that leverage these existing initiatives, along with several others, in support of the Objectives. The deliverables are:
- Expand work-based learning curricula in the state through assembly and communication of best practices and tools to support educators.
- Leverage statewide networks, including Ohio TechNet, to disseminate models to relevant stakeholders.
- Leverage statewide initiatives and networks to engage the business community in earn-and-learn models. Establish an Industry Leadership Council to promote earn and learn models.

- Disseminate outreach and recruitment strategies in support of student and parent engagement.

Key outcomes include increased student and employer participation in manufacturing work-based learning programs with special focus on under-served student populations.

Evaluation Background and Methods

The total funding for the evaluation is $16,500 per year or 9 percent of the overall project budget. The evaluation is conducted by The New Growth Group, LLC (http://www.newgrowthgroup.com/), an Ohio-based workforce consulting group with expertise in program evaluation.

Purpose and Scope
The evaluation is qualitative in nature and endeavors to assess the effectiveness of expansion processes and tools leading to increased delivery of manufacturing work-based learning programs, volume of student enrollments, and engagement of businesses. Two principal questions are posed in the evaluation:

- Are collaboration networks effective in engaging education and business-community members, encouraging participation in work-based learning programs, disseminating relevant information, and encouraging expansion of work-based learning models?
- Have learn and earn models spread or expanded to impact more students and companies with the support of these networks?

The EARN initiative seeks to achieve several key outputs including:
- At least 15 employers on Industry Leadership Council
- At least 12 community college faculty at replication workshop
- At least 30 high school faculty participants in professional development workshop
- At least 100 new students participating in manufacturing WBL
- At least 30 disadvantaged students reached through outreach initiative
- Cohesive Statewide Network
- Industry Leadership Council
- Outreach and recruitment Strategy
- Dissemination of best practices and lessons learned

Additionally, the initiative seeks to accomplish a variety of process outcomes including:
- Formal collaboration network structure built, and roles defined
- Collection of best practices in one accessible directory
- Increased student participation in manufacturing-related work-based learning
- Increased engagement of employers in the program
- Dissemination of information throughout the state.

The longer-term goal is to increase the number of technicians trained to meet industry demand and establish a sustainable system for coordinating earn-and-learn collaborations among educators and employers.

Stakeholder Engagement

The evaluation is qualitative in nature with stakeholder interviews being a principal activity to answer the questions posed. Given that the initiative focuses on the effectiveness of efforts to expand earn-and-learn programs to additional institutions and employers, the evaluation does not target students, rather activities will focus on project leaders at CSCC and LCCC, local project staff and instructors at CSCC and LCCC, engaged college staff, and Industry Leadership Council employers and may include: (1) document analysis, (2) interviews, (3) focus groups, and (4) surveys. Assessment of progress measures or benchmarks required in the original grant proposal are embedded in the activities.

The first year of the evaluation has focused on early and middle stage grant activities to engage network members and encourage broader participation among postsecondary institutions and employers. These grant activities include: network engagement activities, new member and partner outreach and communication, and tool development to support expansion. The second year of the evaluation will focus on middle stage grant activities including: new program implementation and existing program expansion, engagement of parents, and engagement of underserved populations. The third year of the evaluation will focus on later-stage grant activities including: alignment of scaling support activities with the actual needs of adopting institutions and employers, leveraging partnerships with state entities and other networks, dissemination of promising practices, and use of best practices.

In total, the evaluation scope allows for a level of effort that includes: Annual interviews (up to 25) or focus groups (up to 4) with CSCC and LCCC project leaders and staff, staff at engaged schools, and Industry Leadership Council employers; and a survey of staff at engaged schools. The primary evaluation activities in Year 1 of the grant have included conversations and interviews with project managers at CSCC and LCCC and document review. Additional stakeholders were not engaged in the evaluation during the first year because they have not been engaged in the initiative.

The protocol used to interview EARN staff at CSCC and LCCC is included in Appendix A.

Data Management and Analysis

In an effort to avoid bias, a stakeholder engagement schedule and interview and survey protocols have been developed. Additionally, two interviewers are utilized. Content will be analyzed using a selective coding method to assess themes and patterns.

Limitations

Aside from descriptive statistics, there is no quantitative analysis in this evaluation. As with any evaluation, interpretation of data depends on the breadth and quality of data assembled. There are no major concerns regarding the qualitative methods selected.

Evaluation Results: First Year Progress Review

Notably, LCCC, which provides oversight and management of the statewide Ohio TechNet initiative, is leveraging an expanding relationship with the Ohio Manufacturers' Association (OMA) to support the EARN initiative. OMA, a statewide manufacturing industry association that includes over 1000 manufacturing business members, is working to address workforce gaps among its members. This includes a strategic approach for resourcing and enhancing the capabilities of sector partnerships and workforce intermediaries serving regions statewide. Ohio TechNet and OMA collaborated to receive a $12,000,000 federal grant award from the USDOL ETA's Scaling Apprenticeship Through Sector-Based Strategies program. Called the Ohio Manufacturing Workforce Partnership (OMWP), the initiative provides funding and resources to workforce intermediaries throughout the state to engage the manufacturing business community in work-based learning programs. The award provides additional resources for the development of communication and outreach materials to engage students, parents, and businesses in work-based learning. Project managers envision the EARN project will leverage the networks of the OMWP to achieve its Objectives.

EARN is proceeding in accordance with the intended scope of work. Progress on the award's Deliverables and Activities, as proposed in the award narrative, is reported in the table below.

Deliverable	Proposed Activities
1. Expanded Work-Based Learning Model Curriculum	1. Construct/adapt a website to guide companies, students, and other community colleges to investigate work-based learning experiences, leveraging the existing TechNet site. [Product: Work-based learning website] 2. Highlight current innovation best practices: CSCC MMWS, LCCC TRAIN OH Earn & Learn degree, and formal statewide initiatives such as the Registered Apprenticeship Consortium and Ohio Means Internships and Co-Ops. [Product: Best practices directory] 3. Using existing best practice expertise, create guidance for companies on how to engage in work-based learning; how to customize the model based on company size; how to determine which model is right for them and provide a train-the-trainer model for their staff. [Product: Employer guides] 4. Host a Work-Based Learning Symposium sharing best practices. [Product: Work-based learning symposium] 5. Expand successful curriculum models into <u>new</u> academic areas, including revision of curriculum to align with Mechanical Engineering Work Study (CSCC) and Digital Manufacturing/Fabrication (LCCC). [Product: Two new WBL curriculum models]
Deliverable 1 Progress: All elements of this deliverable are "in progress". • LCCC has solicited quotes for website development. Content for the website, best practices directory, and employer guides is drafted or outlined. Estimated Fall 2019 completion for each of these.	

- EARN will leverage an annual conference held by OMA to present and discuss work-based learning programs in a symposium format. The goal is to recruit businesses and educational institutions to adopt new work-based learning programs.
- LCCC is expanding a work-based learning model called TRAIN OH into a new program called Automation Engineering Technician. The integration of the model is still in a pre-implementation design stage.
- CSCC is expanding the MMWS program within the Mechanical Engineering Technician (MET) and Electrical Engineering Technician (EET) programs. The MET and EET programs have been adapted to integrate earn and learn components. Students have been interviewed to begin the program in. Program designers are currently searching for a foundational employer partner in Mechanical Engineering Technician that can anchor curriculum design and hiring processes; there are promising preliminary discussions with AEP to serve as an foundational partner in Electrical Engineering Technician. Additionally, program designers are re-engaging other current employer partners to align with the MMWSP earn and learn model in a variety of majors.
  - From FY 2018 to FY 2019, the MMWS grew from 17 to 21 employers, 38 to 53 students enrolled, and 30 to 39 work-study placements. This is evidence that work-study programs are expanding internally within CSCC.
- Best Practice and Employer Guides have been drafted and are going through a review and finalization process.

2. Statewide Network	1. Adapt and expand Ohio TechNet consortium to create alliance for statewide leadership of continued work and faculty collaboration. [Product: Statewide network] 2. Refine model education pathway with established curriculum framework that can be replicated at other institutions using programs. [Product: Replication framework] 3. Disseminate best practices, tools, and analysis of impact; evaluate impact on implementation at new community colleges. [Product: Impact analysis]

Deliverable 2 Progress: Opportunities to leverage the Ohio TechNet network to reach stakeholders statewide are prolific.

- The OMWP initiative is an enabling factor that provides opportunity for EARN materials to reach a broad audience. The EARN team has made the following presentations.
  - 11/6/19: Ohio TechNet consortium meeting: Courtney Tenhover and Scott Wegeng and CSCC staff presented the TRAIN OH and Modern MFG Work Study models to 34 attendees.
  - 2/1/19: OMA Intermediary Meeting: John Sherwood presented the EARN models to 15 attendees representing sector partner intermediaries from around Ohio.
  - 5/22/19: OCEA Conference: Tara Sheffer and Scott Wegeng presented the CSCC model to a group of 20 educators. Bernie Gosky presented LCCC's TRAIN OH model.
  - 6/27/19: OMA Webinar: EARN models presented to industry and educational attendees.
  - 6/28/19: LIFT hosted a meeting of the Aluminum Extruders Association at LIFT headquarters in Detroit. EARN models presented by LCCC's Bernie Gosky.
  - 7/24/19: Jeff Spain and Scott Wegeng presented the MMWS model at the HI-TEC

	conference in St. Louis. • The Replication Framework is "in-progress" with expected completion in Fall 2019. • A survey-based impact analysis is envisioned with key inquiries assessing whether the tools, materials, and support developed via EARN address the most important needs of adopting institutions.
3. Industry Leadership Council	1. Leverage existing partnerships with industry including Ohio Manufacturing Association, Manufacturing USA organization, and Ohio TechNet industry council. 2. Build upon collaboration with state entities: Ohio Department of High Education (ODHE), JobsOhio, and Ohio Department of Jobs and Family Services (ODJFS). 3. Establish a train-the-trainer model for mentors at companies hosting work- based learning students. [Product: Industry Leadership Council]
Deliverable 3 Progress: Existing partnerships and collaborations are significantly connected to this initiative. OMA's Workforce Committee will serve as the EARN's Industry Leadership Council. Train-the-trainer models for mentors have not been developed at this stage.	
4. Outreach and recruitment strategy	1. Benchmark and share best practices in outreach and recruitment of students into manufacturing careers across the statewide network, highlighting College Credit Plus and leveraging Career Technical Education. [Product: Outreach and recruitment guide] 2. Develop course outline for career exploration curriculum with high school students. [Product: Career exploration course outline] 3. Create statewide outreach strategies for underserved populations to enter manufacturing pathways. [Product: Statewide outreach network] 4. Develop communications for parents at high school on the benefits and innovative environment that exists in manufacturing today. [Product: Parent communication materials]
Deliverable 4 Progress: the development of Deliverable 4 products has not started. They are envisioned as activities for the grant's Year 2.	

The Best Practices Guide (Deliverable 1) includes the following topics: Frontloading Coursework, Centralized Competitive Hiring, Year-Long Work-Based Learning, Career and Major Specific Recruitment, Partner Engagement Strategies, Career Mentoring and Development, Employer Participation Agreement, Student/ Faculty Recruitment, Curriculum Review/ Design Process with Employers, Employer Engagement Process, Work-Based Learning Handbook, and Methods for Sharing Job Opportunities with Students.

The Employer Guide (Deliverable 1) includes the following topics: Flexible Employer-Established Guidelines, Single Point of Contact for Employers, Streamlined Hiring and Selection Process, Guidance for Hosting an Intern, Engaging with Faculty and Participation on Advisory Councils, Strategies to Determine Talent Needs and Work with Community Colleges, Funding Opportunities, Identification of Goals of Student Internships, Hosting Student Tours.

The Modern Manufacturing Work Study Program at CSCC launched a new student cohort of 54 students in Fall 2018. Activities with this cohort included: (1) an orientation to describe the earn and learn opportunity and structure. (2) An activity called "Interview Palooza" which entails three career readiness workshops followed by a student-employer mixer event that is described as speed dating. Student and employers briefly meet each other in a one-on-one setting and have an opportunity to indicate their preferences. Following this, interviews are arranged based on preferences. 300 interviews were held for 53 students among 21 employers. Through this activity 39 students found work-study positions.

Recommendations

The EARN project is adhering to its intended scope of work and on-track to meet its deliverables. The project had not achieved work-based learning programmatic or enrollment expansions at new institutions at the end of Year 1. However, foundational elements including the development of tools and establishment of key dissemination and communication channels are underway. To date, three additional postsecondary institutions have expressed preliminary interest in participating in the EARN initiative. The OMWP and its USDOL grant are significant factors that will greatly enable the EARN initiative to achieve its objectives.

One principal recommendation emerges from this evaluation:

Conduct market research to become more familiar with the interests, challenges, and needs of educational institutions considering the adoption of earn-and-learn models. This recommendation emerges from an observation that the toolkits and resources being developed to support various external stakeholders to adopt earn-and-learn programs are based on the CSCC and LCCC experiences adopting these programs, with limited information about the interests, challenges, and needs of additional institutions considering the adoption of earn and learn programs. One idea for consideration is to adopt an "adaptive" approach when reaching out to potential new employer or college stakeholders. An adaptive approach identifies critical issues or concerns facing each potential stakeholder and considers flexible solutions drawing on the tools available rather than promoting adoption of any one model.

Market research should seek to gather information on what community colleges currently doing to implement earn-and-learn programs, hesitations and challenges standing up models, and tools to help overcome these hesitations and challenges.

Next Step Evaluation Activities

As the award moves into Year 2, evaluation activities will continue to monitor the development of Deliverables and Activities in accordance with the intended scope of work. The role of the project's Industry Leadership Council is still clarifying; this process will be assessed with special focus on establishment of strategies for communicating with employers and development of tools to support the adoption of earn and learn programs.

Special focus in the evaluation will be dedicated to assessing the achievement of expanded student enrollment and business engagement goals in Year 2. Survey and interview methods will

be used to assess the effectiveness of the EARN initiative in reaching new institutions, identifying opportunities, and achieving expansion outcomes.

Appendix A: Project Staff Interview Protocol

The following interview protocol was used to assess the EARN initiative's fidelity to the proposed scope and design, progress, and factors hindering or enabling outcomes.

<u>Guiding Questions</u>
- What is the current status of the project?
- What activities have occurred in the last 12 months?
- What activities are planned in the next 12 months?
- How do these activities align with the grant deliverables?
- Pose each of the Evaluation Questions

<u>Evaluation Questions and Key Prompts</u>
1. Are collaboration networks effective in engaging members and encouraging participation, disseminating relevant information, and encouraging expansion of learn and earn models among institutions?
   - Have Deliverable 1 and 2 activities and products been effective in supporting engagement efforts?
     - Review status of Deliverable 1: Work-based learning website, best practices directory, employer guides, work-based learning symposium
     - Review status of Deliverable 2: Statewide education and industry network, replication framework, impact analysis
   - Has the project resulted in collecting the best practices in one place?
   - Has a formal collaboration network been established? What is the value added by the network?
   - Are more schools participating?

2. Have learn and earn models spread or expanded to impact more students and companies with the support of this network?
   - Did the network support development of two new work-based learning curriculum models (D1)?
   - Have Deliverable 3 activities encouraged businesses to engage with this initiative? How has the engagement of businesses sharpened the direction of the project?
     - D3: Engaged industry leadership council
   - Have Deliverable 4 activities resulted in increased awareness among students, schools, and industry?
     - Outreach and recruitment guide, career exploration course outline, statewide outreach network, parent communication materials
   - Are more students participating? More employers?
   - Has there been an increase in participation among disadvantaged and underserved populations?